WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2005DE59B

Title: Surface Reactivity of Inert Organic Buffers Used in the Study of Water Pollutants

Project Type: Research

Focus Categories: Toxic Substances, Geochemical Processes, Non Point Pollution

Keywords: None

Start Date: 05/01/2005

End Date: 02/28/2006

Federal Funds: $1,750

Non-Federal Matching Funds: $3,500

Congressional District: At Large

Principal Investigator:
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Abstract

In order to test soils, minerals, and clay for environmental contaminants, researchers have been using “inert” organic buffers to keep the system at a constant pH. This condition is achieved by using an organic buffer material; a common buffer used is 2-[N-Morpholino] ethane-sulfonic acid (M.E.S). This buffer is of special significance in environmental chemistry because researchers assume that buffers such as M.E.S have no interaction with the surface, therefore, they do not compete for sites on the surface, and furthermore, do not skew the results of a contamination test. This assumption is, of course, an ideality, which is a condition that is not likely in the field of surface chemistry. If the buffers have any interaction at all with the surface either via inhibition of the overall surface interaction, or by claiming sites on the surface, the results of a contamination test would contain errors. Other research in this field has indirectly shown that buffers may in fact be sorbed and desorbed by the surface and interfere with testing for environmental contamination. The purpose of this study will be to access the reactivity of these buffers and further determine if there is an interaction between the buffer and the surface.